Water Supply Outlook For Arizona

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Cooperating with

SALT RIVER VALLEY WATER USERS ASSOCIATION
and ARIZONA WATER COMMISSION

AS OF
APR. 1, 1980

USDA SCS PORTLAND, OR. 1974

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: THE SNOTEL PROJECT CENTRAL COMPUTER FACILITIES IN PORTLAND, OREGON. THE TERMINAL, PRINTER, COMPUTER AND TAPE DRIVES HAVE NOT COMPLETELY REPLACED THE SNOW SAMPLING TUBES SEEN IN THE FOREGROUND.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.

WATER SUPPLY OUTLOOK FOR ARIZONA

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

NORMAN A. BERG
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D C

Released by

THOMAS G. ROCKENBAUGH
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
PHOENIX, ARIZONA

In Cooperation with

WESLEY E. STEINER
EXECUTIVE DIRECTOR
ARIZONA WATER COMMISSION

KARL F. ABEL
PRESIDENT
SALT RIVER VALLEY WATER
USERS ASSOCIATION

Report prepared by

RONALD A. JONES
SOIL CONSERVATION SERVICE
ROOM 3008 FEDERAL BUILDING
PHOENIX, ARIZONA 85025

Snotel sites such as Promontory Butte now provide daily snow, precipitation and temperature data from nineteen locations on Arizona watersheds.

ARIZONA SUMMARY
as of
APRIL 1, 1980

EXCELLENT SURFACE WATER SUPPLIES ARE FORECAST FOR ARIZONA IN THE COMING SEASON. RESERVOIR MANAGERS WILL BE CONCERNED WITH PROVIDING SUFFICIENT STORAGE TO EFFECTIVELY REGULATE THE EXPECTED INFLOW.

Water Branch, 110-12 Avenue S.W. Calgary, Alberta T3C 1A6.

WATER SUPPLY

Surface water supplies in Arizona will be above average. Forecasts for the April - May period indicate that streamflow on the Salt River system will be 640,000 acre feet, which is 243% of average. The upper Salt River is expected to produce 267% of average flow, the Verde River 188%, and Tonto Creek 271%. The upper Little Colorado River forecasts indicate streamflow will be around 400% of average. The Gila River at Solomon will be 370% of average, the upper Gila about 240%, and the San Francisco 280%. No water shortages are anticipated.

SNOW COVER

The snowpack continues to be much above average. Snow water equivalent for April 1 is 300% of average on the Verde watershed, 254% on the Salt, 209% on the Gila, and 228% on the Little Colorado. The pack is ripe and has begun to melt and release water on many snow courses up to 8500 feet elevation. A general melting of the snowpack can now be expected as warmer weather develops in the state.

PRECIPITATION

Precipitation for March on the snow zone watersheds was from 2 to 7 inches and was generally 130% to 170% of average for the month. Seasonal precipitation from November through March has been 175% to 200% of average on these high watersheds. Since storm systems in March were fairly cool most precipitation in the high country was in the form of snow.

STREAMFLOW

Reported streamflow in March was above average. Inflow to the Salt River Project system was about 388,000 acre feet. March streamflow was 193% of average on the upper Salt River, 244% of average on the Verde River, and 510% of average on Tonto Creek. The San Francisco River at Clifton was 168% of average. The Gila at Solomon was 164%. Although streamflow has been above average the snowpack has not yet made its major contribution.

RESERVOIR STORAGE

All major reservoirs report high levels of storage. Six Salt River Project reservoirs had an April 1 storage of 1,919, 700 acre feet which is 93% of capacity. San Carlos Reservoir contains 1,033,000 acre feet, 96% of capacity. Lake Pleasant is full with 157,200 acre feet of water. Four major reservoirs on the Colorado River have a storage of 46,806, 400 acre feet or 87% of capacity. Lyman Reservoir on the Little Colorado River contain 26,500 acre feet at 87%.

STREAMFLOW FORECASTS ABOUT APRIL 1, 1980

BASIN, STREAM and/or FORECAST POINT	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	FORECAST PERIOD	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average †
SALT RIVER DRAINAGE					
Salt near Roosevelt	450	267	Apr-May	562.4	168.3
"	310	299	April	380.4	103.8
Tonto Creek near Roosevelt	35	271	Apr-May	37.8	12.9
"	28	275	April	31.5	10.2
Verde River above Horseshoe	155	188	Apr-May	134.2	82.6
"	130	195	April	113.1	66.5
Total Salt River Project Streams	640	243	Apr-May	734.4	263.8
"	468	259	April	525.0	180.5
GILA RIVER DRAINAGE					
Gila River at Calva	125	370	Apr-May	141.2	33.8
Gila River near Gila	52	230	Apr-May	48.0	22.6
Gila River near Solomon	165	324	Apr-May	159.8	51.0
"	115	355	April	109.8	32.4
Gila River near Virden	65	255	Apr-May	60.0	25.5
Frisco River at Clifton 2/	80	282	Apr-May	79.7	28.4
Frisco River at Glenwood 2/	40	280	Apr-May	41.3	14.3
LITTLE COLORADO RIVER DRAINAGE					
Little Colo. above Lyman Dam	38	432	Apr-June	45.5	8.8
Greer	11.0	175	Apr-June	16.0	6.3
GRANITE CREEK DRAINAGE					
Granite Creek	6.5	---	Apr-May	---	---
Willow Creek	4.0	---	Apr-May	---	---
MIMBRES RIVER DRAINAGE					
Mimbres River near Mimbres	3.3	174	Apr-May	---	1.9*
COLORADO RIVER DRAINAGE					
Virgin River near Littlefield	152	--	Apr-June	---	---
Lake Mary Inflow	17	773	Apr-May	6.3	2.2

†Based on 15-year period, 1963-77
*Average for less than 15 years

* 1963-1977 period.

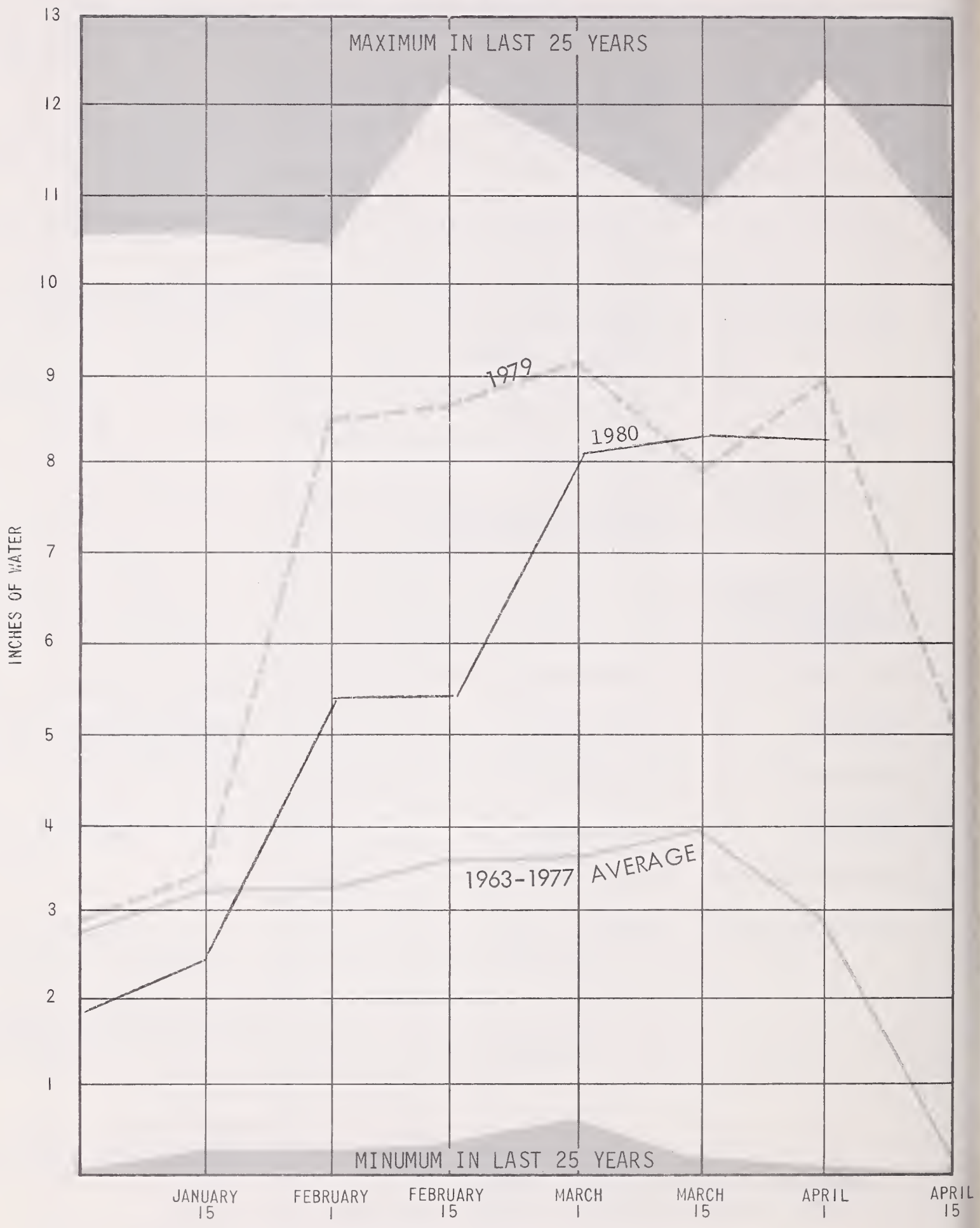
RESERVOIR STORAGE (Thousand Acre Feet) APRIL 1, 1980

BASIN or STREAM	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average†
GILA RIVER DRAINAGE					
Agua Fria	Lake Pleasant	157.6	157.2	157.6	78.6
Granite	Watson Lake	4.7	4.6	4.6	3.3
Granite	Willow Creek	6.1	6.1	6.1	2.9
Gila	San Carlos	1,073	1,033	1,033	261
Salt (4)	Roosevelt, Apache, Canyon & Saguaro	1,755	1,643	1,647	1,251
Verde (2)	Bartlett and Horseshoe	309.6	276.7	281.8	148.8
Salt and Verde	6 Salt River Project Reservoirs	2,065	1920	1,929	1,399
COLORADO RIVER DRAINAGE					
Colorado	Lake Havasu	619.4	543.6	533.0	557.4
Colorado	Lake Mohave	1,810	1,664	1,659	1,667
Colorado	Lake Mead	26,159	23,335	23,080	17,302
Colorado	Lake Powell	25,002	21,264	16,000	10,069
Little Colorado	Lyman	30.6	26.5	15.6	16.9
Little Colorado	Show Low Lake	5.1	5.2	5.1	2.3

† Based on 15-year average, 1963-77.
* Average is for less than 15 years of record.

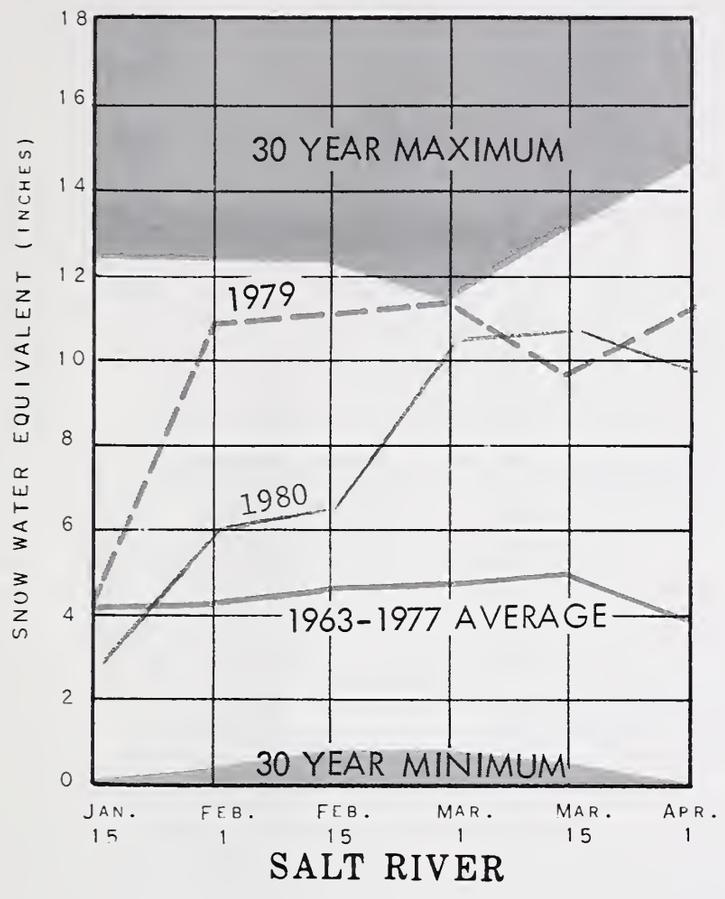
* 1963-1977 period.

AVERAGE SNOW COVER
ARIZONA
1980

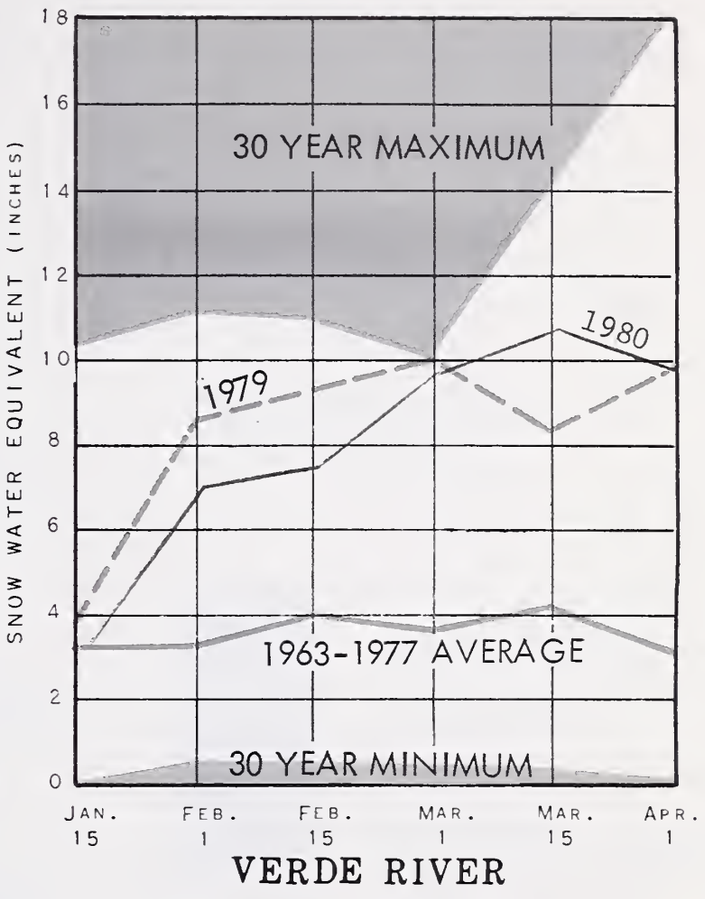


This graph represents the average snow water content on eleven selected snow courses on Arizona Sub-Watersheds.

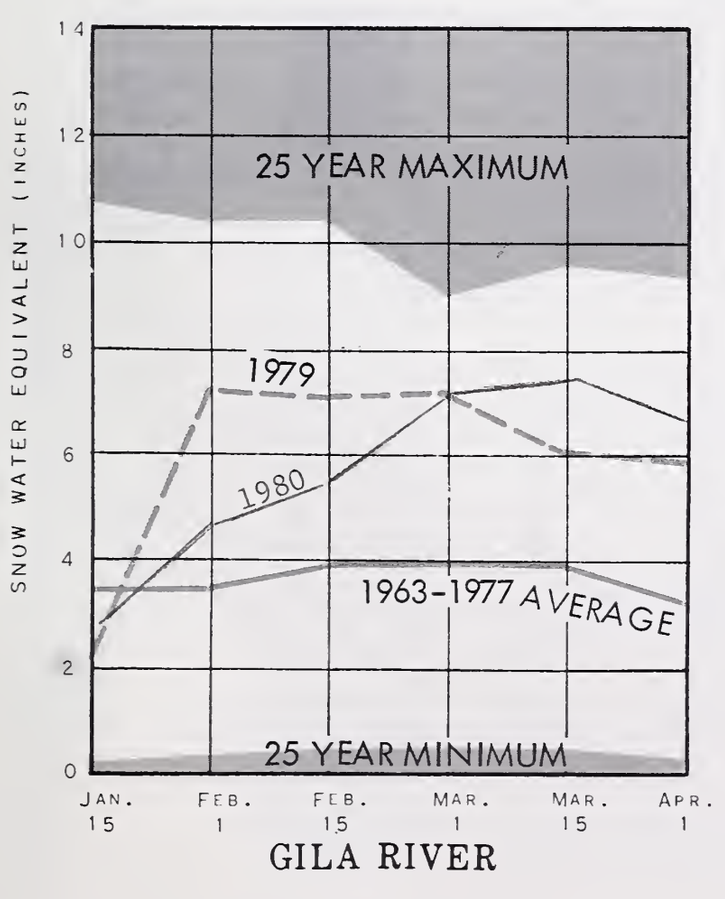
1980
WATERSHED SNOW COVER



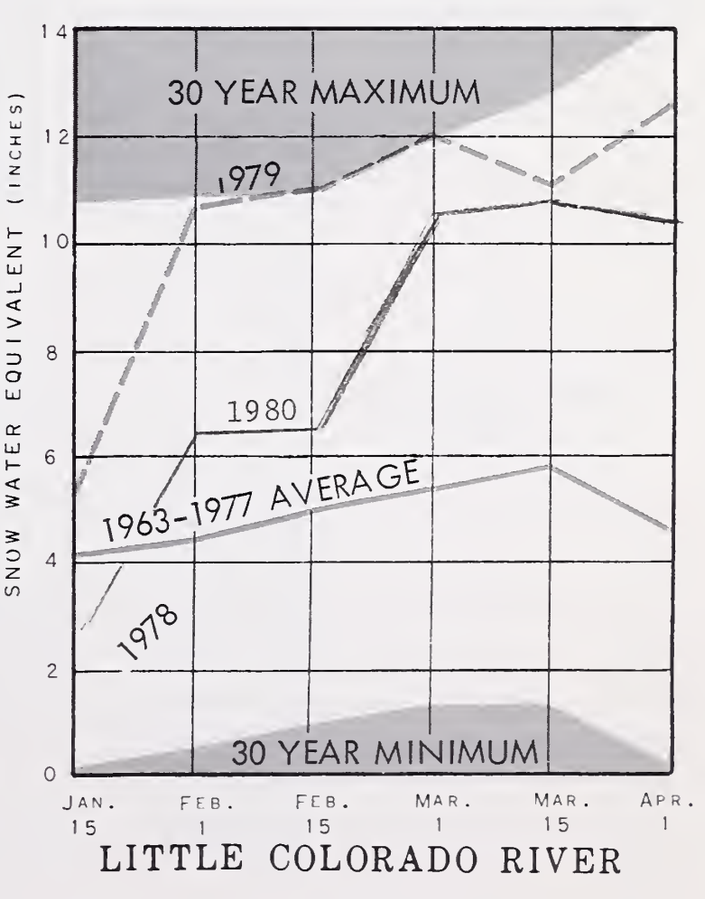
SALT RIVER



VERDE RIVER



GILA RIVER



LITTLE COLORADO RIVER

BASED ON SELECTED SNOW SURVEY COURSES

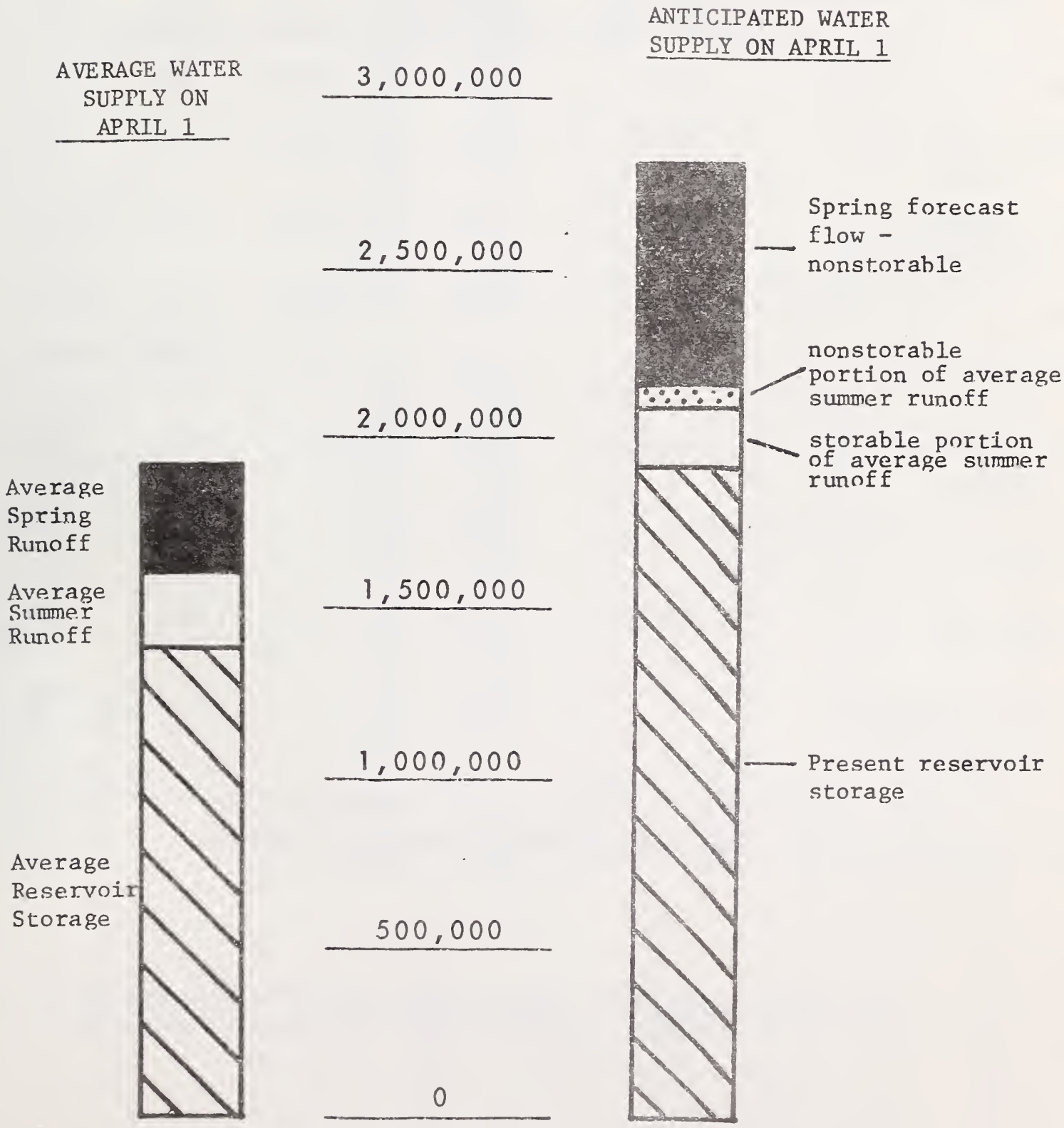
SUMMARY of SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS) ABOUT APRIL 1, 1980

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF:	
		Last Year	Average
Gila	10	114	209
Salt	10	85	254
Verde	10	102	300
Little Colorado	5	83	228

· 1963-1977 period.

WATER SUPPLY INVENTORY
SALT RIVER VALLEY SYSTEM

IN ACRE-FEET



Based on Present Storage + Forecast Spring Runoff + Average Summer Runoff

1980

SPRING RUNOFF

1000's of Acre-Feet

Stream and Station	Measured 1/ Runoff Jan -March	Forecast Runoff April-May	Total-January thru May 1980	% of Average	Last Year
Salt River at Intake	743.4	450	1193.4	346	1,142
Verde River above Horseshoe	948.2	155	1103.2	493	599
Tonto Creek above Roosevelt	387.9	35	422.9	771	274
Total Salt River Proj.	2079.5	640	2719.5	436	2,015
Gila River near Virden	81.0	65	146	186	247
Gila River near Solomon	308.0	165	473	303	628
Gila River near Calva	-	125	-	-	561
Frisco River at Clifton	134.1	80	214.1	285	286
Little Colorado at Lyman Reservoir (Jan-June)	-	38	-	-	45

1/ Provisional runoff provided by USGS and Salt River Project

SNOW About APRIL 1, 1980

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
					Water Content (inches)	
NAME	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average †
SALT RIVER						
Baldy*	9125	3/27	44	14.8	18.3	6.0
Beaver Head	8000	3/31	9	3.4	5.7	1.6
Canyon Creek	7500	3/31	23	9.6	11.1	2.2
Canyon Point	7600	3/31	28	11.7	11.9	2.3**
Coronado Trail	8000	3/31	16	6.6	0.4	1.3
Forest Dale	6430	3/31	1	0.1	0.0	0.2
Ft. Apache	9160	3/27	43	13.6	17.3	6.3
Hannagan Meadows	9090	3/31	62	23.2	19.0	8.4**
Hawley Lake	8300	3/31	49	19.6	15.7	4.4**
Heber	7600	3/31	26	10.9	11.2	2.3
Maverick Fork	9050	3/27	57	19.8	23.1	7.6
McNary	7200	3/31	7	2.1	5.6	1.1
Milk Ranch	7000	3/31	1	0.1	2.3	0.7
Mt. Ord (A)	11000	N O	S U R V	E Y	51.3	26.7**
Nutrioso*	8500	3/31	4	1.9	1.8	0.9
Promontory Butte	7930	4/1	84	35.4	31.3	10.7**
Smith Cienega (A)	9850	N O	S U R V	E Y	39.8	20.9**
Sunrise Summit	10600	3/26	85	27.4	35.8	15.8**
Wilson Lake	9000	3/26	59	20.1	19.9	8.9**
Workman Creek	6900	3/25	12	4.6	12.6	3.2
LITTLE COLORADO RIVER						
Baldy	9125	3/27	44	14.8	18.3	6.0
Canyon Creek	7500	3/31	23	9.6	11.1	2.2
Canyon Point	7600	3/31	28	11.7	11.9	2.3**
Cheese Springs	8600	3/26	27	9.3	8.5	5.3**
Forest Dale	6430	3/31	1	0.1	0.0	0.2
Ft. Apache	9160	3/27	43	13.6	17.3	6.3
Fort Valley	7350	3/31	13	4.1	3.3	1.3
Happy Jack*	7630	3/31	27	9.7	9.0	2.3
Heber	7600	3/31	26	10.9	11.2	2.3
Lake Mary	6970	3/31	3	0.4	1.9	-
McNary	7200	3/31	7	2.1	5.6	1.1
Mormon Lake	7350	3/31	21	8.9	7.6	2.7
Mormon Mountain	7500	3/31	37	15.5	12.5	4.3
Nutrioso*	8500	3/31	4	1.9	1.8	0.9
Promontory Butte	7930	4/1	84	35.4	31.3	10.7**
Snow Bowl #1	10260	3/31	80	26.2	26.1	10.8
Snow Bowl #2	11000	3/31	118	37.6	38.6	18.6**
Wilson Lake	9000	3/26	59	20.1	19.9	8.9**

† *1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated.*

· 1963-1977 period.

SNOW ABOUT APRIL 1, 1980

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
					Water Content (inches)	
NAME	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average †
GILA RIVER						
Bear Wallow	8100	-	-	-	12.2	2.8
Beaver Head	8000	3/31	9	3.4	5.7	1.6
Coronado Trail	8000	3/31	16	6.6	0.4	1.3
Emory Pass #1 *	7800	3/31	0	0.0	0.0	0.1**
Emory Pass #2 *	7800	3/31	0	0.0	0.0	0.3**
Frisco Divide	8000	3/31	5	1.6	1.8	0.9
Hannagan Meadows *	9090	3/31	62	23.2	19.0	8.4**
Hummingbird (A)	10550	-	-	-	29.3	15.7**
McKnight Cabin * (A)	9300	3/26	16	6.2	5.6	3.2**
Mogollon	7000	3/31	0	0.0	0.0	0.1
Nutrioso	8500	3/31	4	1.9	1.8	0.9
Redstone Trail	8600	3/31	-	12.0E	11.8	6.5
Rose Canyon	7300	-	-	-	4.5	0.6
Silver Creek Divide (SNOTEL)	9000	3/31	-	16.0E	16.0	10.4**
State Line	8000	3/31	5	1.8	2.4	1.1
Whitewater (A)	10750	-	-	-	35.3	20.6**
VERDE RIVER						
Baker Butte	7300	3/31	33	14.4	15.1	4.2**
Baker Butte #2	7700	3/31	71	28.6	27.5	10.2**
Camp Wood	5700	3/31	0	0.0	0.0	0.1
Chalender *	7100	3/31	19	6.9	6.8	1.6
Copper Basin Divide	6720	3/31	0	0.0	2.7	0.8
Fort Valley	7350	3/31	13	4.1	3.3	1.3
Gaddes Canyon	7600	3/31	36	13.7	12.0	4.7
Happy Jack	7630	3/31	27	9.7	9.0	2.3
Iron Springs *	6200	3/31	0	0.0	1.1	0.2
Mingus Mountain	7100	3/29	0	0.0	2.0	0.5
Mormon Lake *	7350	3/31	21	8.9	7.6	2.7
Mormon Mountain	7500	3/31	37	15.5	12.5	4.3
Newman Park	6750	3/31	4	1.0	1.9	1.3
Snow Bowl #1	10260	3/31	80	26.2	26.1	10.8
Snow Bowl #2	11000	3/31	118	37.6	38.6	18.6**
White Horse Lake Jct.	7150	3/31	23	8.1	5.9	2.1**
White Spar	6000	3/31	0	0.0	0.4	0.2
LOWER COLORADO RIVER						
Bill Williams Intermediate	8550	3/31	-	-	---	8.6**
Bill Williams Summit	8950	3/31	-	-	---	11.6**
Chalender *	7100	3/31	19	6.9	6.8	1.6
Fort Valley	7350	3/31	13	4.1	3.3	1.3
Grand Canyon	7500	-	-	-	---	1.1
Williams Ski Run	7720	3/31	63	22.0	17.6	7.8**

† *1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated.*
E = Estimate

- 1963-1977 period.

SNOW About MARCH 15, 1980

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (inches) Last Year	Average †
SALT RIVER						
Baldy*	9125	3/13	42	14.5	15.6	7.3
Beaver Head	8000	3/14	14	5.3	5.5	2.4
Canyon Creek	7500	3/13	25	10.4	7.6	3.5
Canyon Point	7600	3/13	32	13.2	8.5	3.9**
Coronado Trail	8000	3/14	23	9.6	0.9	2.4
Forest Dale	6430	3/14	0	0.0	0.0	0.5
Ft. Apache	9160	3/13	43	13.7	14.4	7.8
Hannagan Meadows	9090	3/14	64	22.6	17.0	9.0**
Hawley Lake	8300	3/14	50	20.5	13.3	6.7**
Heber	7600	3/13	28	11.9	8.6	3.8
Maverick Fork	9050	3/15	--	18.9E	21.0E	9.1
McNary	7200	3/14	8	3.3	5.3	2.0
Milk Ranch	7000	3/14	0	0.0	3.2	0.8
Mt. Ord (A)	11000	NO	SURVEY		51.3	26.7**
Nutrioso*	8500	3/14	7E	2.9	2.7	1.5
Promontory Butte	7930	3/14	82	34.1	23.2	12.7**
Smith Cienega (A)	9850	NO	SURVEY		32.0	-
Sunrise Summit	10600	3/12	88	26.8	31.1	14.6**
Wilson Lake	9000	3/12	61	19.4	16.9	10.5**
Workman Creek	6900	3/14	--	6.0E	8.8	5.4
LITTLE COLORADO RIVER						
Baldy	9125	3/13	42	14.5	15.6	7.3
Canyon Creek	7500	3/13	25	10.4	7.6	3.5
Canyon Point	7600	3/13	32	13.2	8.5	3.9**
Cheese Springs	8600	3/12	34	10.4	8.5	6.9**
Forest Dale	6430	3/14	0	0.0	0.0	0.5
Ft. Apache	9160	3/13	43	13.7	14.4	7.8
Fort Valley	7350	3/14	18	7.0	4.1	2.0
Happy Jack*	7630	3/14	29	12.4	8.6	3.4
Heber	7600	3/13	28	11.9	8.6	3.8
Lake Mary	6970	3/14	2	1.0	5.2	-
McNary	7200	3/14	8	3.3	5.3	2.0
Mormon Lake	7350	3/14	27	11.5	7.7	4.2
Mormon Mountain	7500	3/14	39	16.6	11.8	5.8
Nutrioso*	8500	3/14	7E	2.9	2.7	1.5
Promontory Butte	7930	3/14	82	34.1	23.2	12.7**
Snow Bowl #1	10260	3/14	78	24.0	21.5	10.2
Snow Bowl#2	11000	3/14	114	36.7	34.1	17.0**
Wilson Lake	9000	3/12	61	19.4	16.9	10.5**

† *1963-77 15-year period.* (*) *Adjacent drainage.* (**) *1963-77 Adjusted Average.* (A) *Aerial observation: water content estimated.* E = *estimate.*

SNOW About March 15, 1980

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
					Water Content (inches)	
NAME	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average †
GILA RIVER						
Bear Wallow	8100	3/14	2	0.8	9.9	4.2
Beaver Head	8000	3/14	14	5.3	5.5	2.4
Coronado Trail	8000	3/14	23	9.6	0.9	2.4
Emory Pass #1*	7800	3/13	0	0.0	0.0	0.5**
Emory Pass #2*	7800	3/13	0	0.0	0.0	1.1**
Frisco Divide	8000	3/14	10	4.6	3.3	1.9
Hannagan Meadows*	9090	3/14	64	22.6	17.0	9.0**
Hummingbird (A)	10550	NO	SURVEY		-	16.3**
McKnight Cabin* (A)	9300	NO	SURVEY		-	3.5**
Mogollon	7000	3/14	---	0.0E	0.0E	0.4
Nutrioso	8500	3/14	7E	2.9	2.7	1.5
Redstone Trail	8600	3/14	--	9.0E	11.6	7.1
Rose Canyon	7300	3/14	0	0.0	4.5	1.9
Silver Creek Divide (SNOTEL)	9000	3/14	--	15.7E	15.4	10.8**
State Line	8000	3/14	13	6.0	4.2	1.9
Whitewater (A)	10750	NO	SURVEY		-	19.7**
VERDE RIVER						
Baker Butte	7300	3/13	34	14.5	11.7	6.0**
Baker Butte #2	7700	3/13	70	27.1	22.0	12.1**
Camp Wood	5700	3/13	0	0.0	0.0	0.4
Chalender*	7100	3/14	19	8.0	5.8	2.6
Copper Basin Divide	6720	3/14	0	0.0	1.9	1.6
Fort Valley	7350	3/14	18	7.0	4.1	2.0
Gaddes Canyon	7600	3/14	32	12.2	9.3	5.6
Happy Jack	7630	3/14	29	12.4	8.6	3.4
Iron Springs*	6200	3/14	0	0.0	0.0	0.4
Mingus Mountain	7100	3/14	0	0.0	0.0	0.9
Mormon Lake*	7350	3/14	27	11.5	7.7	4.2
Mormon Mountain	7500	3/14	39	16.6	11.8	5.8
Newman Park	6750	3/14	12	4.3	3.2	1.9
Snow Bowl #1	10260	3/14	78	24.0	21.5	10.2
Snow Bowl #2	11000	3/14	114	36.7	34.1	17.0**
White Horse Lake Jct.	7150	3/14	27	10.0	4.4	3.2**
White Spar	6000	3/14	0	0.0	0.0	0.5
LOWER COLORADO RIVER						
Bill Williams Intermediate	8550	NO	SURVEY		17.4	8.9**
Bill Williams Summit	8950	NO	SURVEY		21.2	11.5**
Chalender*	7100	3/14	19	8.0	5.8	2.6
Fort Valley	7350	3/14	18	7.0	4.1	2.0
Grand Canyon	7500	3/17	2	0.6	4.5	1.4
Williams Ski Run	7720	3/13	58	23.2	13.8	8.0**
Bright Angel	8400	3/13	63	23.0	23.0	1.9

† *1963-77 15-year period.* (*) *Adjacent drainage.* (**) *1963-77 Adjusted Average.* (A) *Aerial observation: water content estimated.* E = *estimate.*

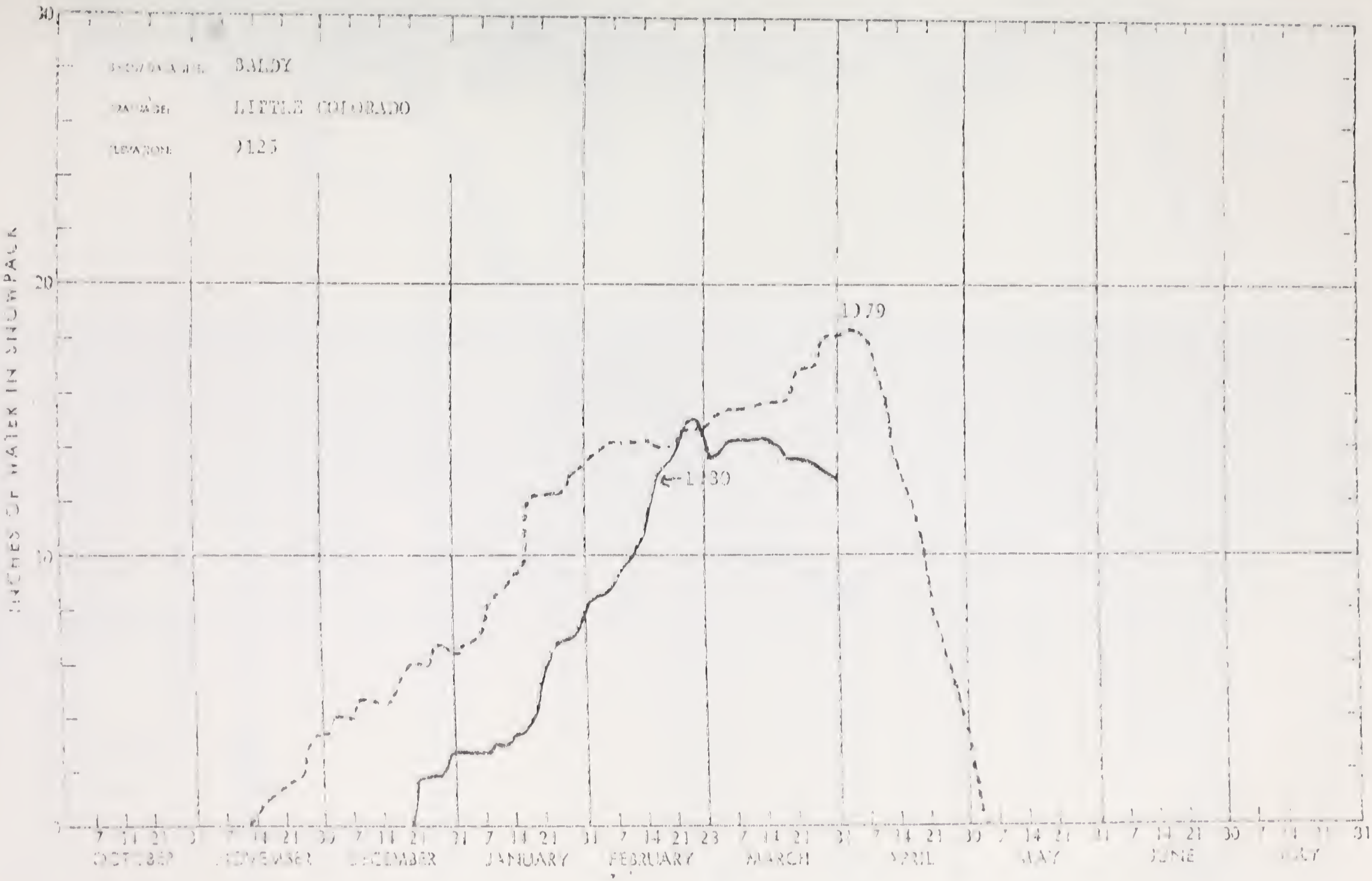
- 1963-1977 period.

PRECIPITATION (Inches) ABOUT April 1, 1980

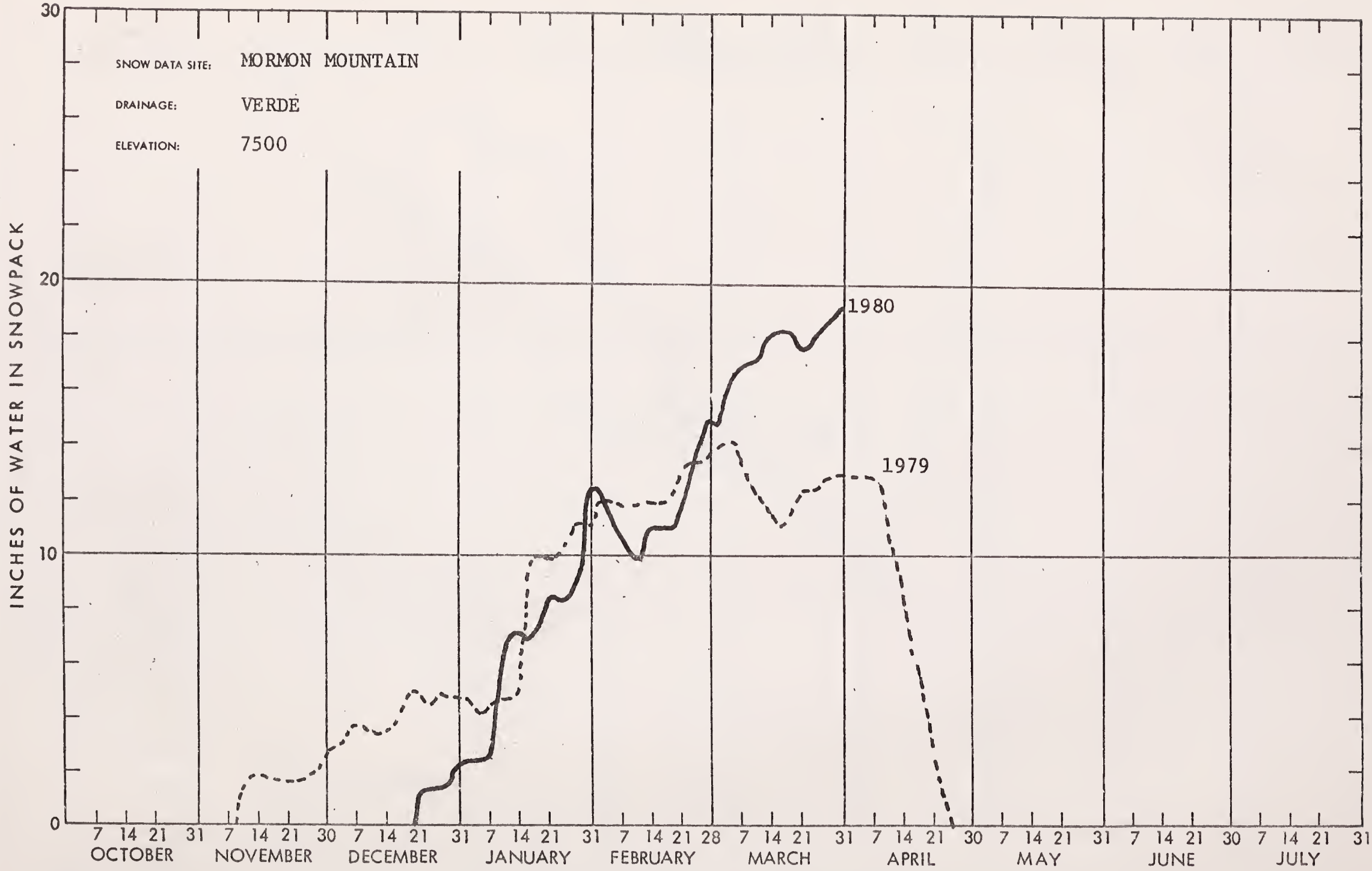
DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION			FROM APPROX. NOV. 1 TO DATE		
		Date of Reading	Month's Precipitation	Average †	This Year	Average †	Percent of Average
GILA RIVER							
Silver Creek Divide	9000	3/31	4.10	2.84*	18.90	13.35*	142
Hannagan Meadows**	9030	3/31	4.00	2.31	23.23	11.90	195
Frisco Divide**	8000	3/31	1.45	1.32	12.71	5.85	217
SALT RIVER							
Canyon Point	7600	3/31	6.53	3.82*	35.44	16.90	210
Hannagan Meadows**	9030	3/31	4.00	2.31	23.23	11.91	195
Little Wildcat (Heber Snow Course)	7600	3/31	5.97	3.20	31.90	14.38	222
Maverick Fork	9050	3/27	3.30	2.57	22.04	12.47	177
Workman Creek**	6970	3/25	7.30	3.50	---	16.69	---
Wilson Lake	9100	3/26	3.55	3.18*	20.42	12.14*	168
VERDE RIVER							
Baker Butte	7300	3/31	5.20	3.45*	33.35	15.82	211
Copper Basin Divide	6720	3/31	2.72	3.01	20.40	11.90	171
Fort Valley**	7350	3/31	2.94	2.20	16.99E	8.86	192
Happy Jack**	7480	3/31	3.99	2.66	24.83	12.02	207
Mingus Mountain	7660	3/29	3.10	2.46	20.81	9.71	214
Mormon Mountain	7500	3/31	5.30	3.94	35.26	17.14	206
White Horse Lake Jct.**	7150	3/31	5.50	3.37	30.78	14.58	211
LITTLE COLORADO							
Inner Basin #1	9830	---	---	3.57	---	16.20	---
Inner Basin #2	10050	---	---	4.37	---	20.10	---
Greer Lakes	8500	3/27	1.75	1.41	---	6.40	---
Little Wildcat (Heber Snow Course)	7600	3/31	5.97	3.20	31.90	14.38	222
Sheep Crossing (Baldy Snow Course)	9125	3/27	1.55	2.61	17.18	11.48	150

† 1963-77 Average
* Adjusted Average
** Data Supplied by U. S. Forest Service
E = Estimate

- 1963-1977 period.


BALDY
LITTLE COLORADO
11125
INCHES OF WATER IN SNOWPACK
30
20
10
1079
←1130
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

WSFB-X138


SNOW DATA SITE: MORMON MOUNTAIN
DRAINAGE: VERDE
ELEVATION: 7500
INCHES OF WATER IN SNOWPACK
30
20
10
0
1980
1979
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

SNOW COURSE	SNOW SURVEYORS DURING 1980
Agassiz	SCS (King and Talbot)
Baker Butte #1 & #2	SCS (Enz and Jones)
Baldy #1, #2 and #3	SCS (Kyle and Thompson)
Bear Wallow	Coronado Natl. Forest (Jones, Bryan, Palmer, Vigil & Dyess)
Beaver Head	Apache-Sitgreaves N. F. (Anaya, Bonomo, Rethlahe & Vahle)
Bill Williams Intermediate	Kaibab National Forest (Price, Eddy and Gillett)
Bill Williams Summit	Kaibab National Forest (Price and Eddy)
Bright Angel	National Park Service (Greer, Bruek, Penpraze)
Camp Wood	Prescott National Forest (Jordan)
Canyon Creek	SCS (Enz and Jones)
Canyon Point	SCS (Enz and Jones)
Chalender	Kaibab National Forest (Kramer, Bradley and Killebrew)
Cheese Springs	SCS (Kyle and Thompson)
Copper Basin Divide	SCS (Gonzales, Jalving, Conrad)
Coronado Trail	Apache-Sitgreaves National Forest (Anaya, Bonomo & Vahle)
Emory Pass #1 and #2	SCS (Bray and Garcia)
Forest Dale	Bureau of Indian Affairs (Endfield and Grippen)
Ft. Apache	SCS (Kyle and Thompson)
Ft. Valley	Rocky Mountain Forest and Range Experimental Station
Frisco Divide	Gila National Forest (Gibbons, Elson, Bustamante)
Gaddes Canyon	SCS (Earl Barto)
Grand Canyon	National Park Service (Anderson, Olais, Powers, Miller, Neuman and Stephens)
Hannagan Meadows	Apache-Sitgreaves National Forest (Anaya, Bonomo & Vahle)
Happy Jack	Coconino National Forest (Allred, Poleyquira, Teague, and Jenner)
Hawley Lake	Bureau of Indian Affairs (Endfield and Grippen)
Heber	SCS (Enz and Jones)
Hummingbird	SCS (Bray, Alexander, Cobb)
Inner Basin #1 (Bear Paw)	SCS (King and Talbot)
Inner Basin #2 (Snowslide)	SCS (King and Talbot)
Iron Springs	SCS (Gonzales and Jalving)
Lake Mary	SCS (Jorgensen and King)
Maverick Fork	SCS (Kyle and Thompson)
McKnight Cabin	SCS (Bray, Alexander, Cobb)
McNary	Bureau of Indian Affairs (Endfield and Grippen)
Milk Ranch	Bureau of Indian Affairs (Endfield and Grippen)
Mingus Mountain	SCS (Earl Barto)
Mogollon	SCS (James Lyon)
Mormon Lake	SCS (Jorgensen, Orrell, King)
Mormon Mountain	SCS (Jorgensen and King)
Mormon Mountain Summit	SCS (Jorgensen and King)
Mt. Ord	Salt River Project (Warskow)
Newman Park	SCS (Jorgensen)
Nutrioso	Apache-Sitgreaves National Forest (Bonomo and Vahle)
Promontory Butte	SCS (Enz and Jones)
Redstone Trail	SCS (James Lyon)
Rose Canyon	Coronado National Forest, Jones, Bryan, Palmer, Vigil & Dyess)
Silver Creek Divide	SCS (James Lyon)
Smith Cienega	Salt River Project (Warskow)
Snow Bowl #1 and #2	Coconino National Forest (Hughes and Walters)

SNOW COURSE	SNOW SURVEYORS DURING 1980
State Line	Gila National Forest (Gibbons, Elson, and Bustamante)
Sunrise Summit	SCS (Kyle and Thompson)
White Horse Lake Jct.	Kaibab National Forest (Price, Eddy, Gillett, and Tisino)
White Spar	SCS (Gonzales and Jalving)
Whitewater	SCS (Bray, Alexander and Cobb)
Williams Ski Run	Kaibab National Forest (Price, Eddy, Gillett, Tisino and Garcia)
Wilson Lake	SCS (Kyle and Thompson)
Workman Creek	Rocky Mountain Forest and Range Experimental Station

The Following Organizations Cooperate in the Arizona Snow Survey Work

FEDERAL

- Department of Agriculture
  - Soil Conservation Service
  - Forest Service
    - Apache-Sitgreaves Forest
    - Coconino Forest
    - Coronado Forest
    - Gila Forest
    - Kaibab Forest
    - Prescott Forest
    - Rocky Mountain Forest and Range Experiment Station
    - Tonto Forest
- Department of Commerce
  - NOAA, National Weather Service
- Department of Interior
  - Bureau of Reclamation
    - Region 111
  - Geological Survey
    - Arizona District
    - New Mexico District
  - Bureau of Indian Affairs
    - Fort Apache Reservation
    - San Carlos Irrigation Project
  - National Park Service
    - Grand Canyon National Park
- Gila Water Commissioner
  - Safford, Arizona

STATE

- Arizona Game and Fish Department
- Arizona State Parks Board
- Arizona Water Commission
- University of Arizona
  - Arizona Agricultural Experiment Station
  - Water Resource Research Center
  - Department of Watershed Management

MUNICIPAL

- City of Flagstaff

IRRIGATION PROJECTS

- Salt River Valley Water User's Association
  - Phoenix, Arizona
- San Carlos Irrigation and Drainage District
  - Coolidge, Arizona
- Maricopa County Municipal Water Conservation District

PRIVATE

- Southwest Forest Industries, Inc.
  - McNary, Arizona
- Fort Apache Indian Reservation
  - White Mountain Recreation Enterprises

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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"The Conservation of Water begins with the Snow Survey"